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EXAMINER INTERVIEW SUMMARY

In an Examiner Interview conducted by telephone on June 15, 2005, between Examiner Prasad and the Applicant's representatives, Jason Kraus and Dana Zelazny, the applicant provided a proposed amendment in advance of the interview, summarized the claimed invention as well as Gately, the prior art cited in the outstanding Office Action, and highlighted differences between the two. After reviewing the proposed amendment, Examiner Prasad stated that the "solder joint" recited in claim 1 read on the copper coated via extending through the stack of printed circuit boards described in Gately. Mr. Kraus asked whether narrowing claim 1 to specify that the "solder joint" was comprised of an opening between adjacent boards filled with solder would define over the prior art. Examiner Prasad agreed that such an amendment distinguish over Gately and require additional searching. No agreement was reached as to specific amendments necessary to overcome the prior art.

REMARKS

By this Amendment, claims 3, 9, 18, 19, 29, 30, 39 and 41 are canceled and claims 1, 2, 10, 11, 20-28, 31-33, 40 and 41 are amended. After entry of this Amendment, claims 1-7, 10-17, 20-28, 31-38, 40 and 42-46 are pending. No new matter is introduced into the application by the claim amendments.

Specification

The Examiner stated that the title of the invention was not descriptive. The invention has been re-titled "Pinless Solder Joint for Coupling Circuit Boards".

The Examiner objected to the drawings under 37 C.F.R. 1.83(a) and to the specification under 37 C.F.R. 1.75(d) and stated that the circuit board assembly comprising a medical device recited in claim 19 must be shown or described or the feature canceled from claim 19. While Applicant disagrees with the Examiner, for the sake of expedient prosecution of the present application, claim 19 has been canceled. Withdrawal of the objections is respectfully requested.

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Claim Rejections – 35 U.S.C. § 112

The Examiner rejected claim 19 under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which applicant regards as their invention. While Applicant disagrees with the Examiner, for the sake of expedient prosecution of the present application, claim 19 has been canceled. Withdrawal of the rejection is respectfully requested.

The Examiner rejected claims 22-39 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 29, 30 and 39 have been cancelled and claims 21-28 and 31-38 have been amended to recite an "implantable medical device" as set forth in the preamble of independent claim 20. Withdrawal of the objections is respectfully requested.

Claim Rejections – 35 U.S.C. § 102

The Examiner has rejected claims 1-6, 8-9, 12-13 and 16-18 under 35 U.S.C. §102 (b) as being anticipated by Gately et al. (U.S. Patent No. 6,541,712). Claims 8, 9 and 18 have been cancelled.

Briefly, Gately describes a method of manufacturing a printed circuit board having multiple layers with a discontinuous via extending therethrough. The printed circuit board includes layers of dielectric and non-platable dielectric materials stacked and laminated to one another, forming a single printed circuit board, and a hole drilled through the laminated printed circuit board. An electroless plating process is used to apply a thin layer of copper to the walls of the hole and to the exposed areas on the surface of the board. An electrolytic process is used to apply a thicker layer of copper and a layer of solder to the walls of the hole and to the exposed areas on the surface of the board. Finally, the resist, the copper under the resist, and the solder that was plated to protect the hole and the circuits from the etching process are removed. Thereafter, the copper on the walls of the holes electrically couples adjacent layers within the printed circuit board.

The present application describes a circuit board assembly and method of joining two separate printed circuit boards into a circuit board assembly. Claim 1 as amended

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recites, in part, an "air gap between the first and second circuit boards" and a solder joint "substantially filling the gap between the first and the second apertures..." Any gaps between layers of the Gately circuit board are filled by layers of non-platable materials and thus do not disclose air gaps. Furthermore, Gately does not describe a solder joint that substantially fills the air gap between the first and the second apertures. Thus, Gately does not anticipate claim 1. Claims 2-6, 12-13 and 16-17 depend from claim 1 and are allowable for at least these same reasons. Accordingly, withdrawal of the rejections is respectfully requested.

Claim Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 7, 10-11, 14-15, 20-21 and 40-46 under 35 U.S.C. §103 (a) as unpatentable over Gately. Claims 7, 10-11 and 14-15 depend from claim 1 and are allowable for at least the reasons recited above. Accordingly, withdrawal of the rejections is respectfully requested.

Claim 20 as amended recites, in part, an implantable medical device including a housing, a battery and first and second circuit boards, "an air gap between the first and second circuit boards" and a solder joint that "substantially fills the gap between the first and second apertures..." Gately does not teach or suggest such an implantable medical device for at least the reasons described with respect to claim 1 above. Claims 21-28 and 31-38 depend from claim 20 and are allowable at least these same reasons. Accordingly, withdrawal of the rejections is respectfully requested.

Claim 40 as amended recites a method of coupling a first circuit board having a first aperture to a second circuit board, including, in part, "aligning the first aperture with the second aperture such that the first and second apertures are separated by an air gap therebetween" and "flowing a sufficient amount of solder into the first aperture to substantially fill the gap and the second aperture so that solder is visible at the first and second apertures."

In contrast, as described above, Gately describes laminating several layers into a single board and then drilling holes through the board to form a discontinuous via. Thus, Gately does not teach or suggest aligning the first and second apertures, nor of separating the first and second apertures by an air gap. Gately also describes applying

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solder to the walls of the apertures and to the exposed areas on the surface of the board through an electrolytic process. Gately does not teach or suggest nor is it inherent that a sufficient amount of solder be flowed into the first aperture to substantially fill the gap, nor that the solder be visible at the first and second apertures. Thus, Gately does not teach or suggest the method of independent claim 40. Claims 42-46 depend from claim 40 and are allowable for at least these same reasons. Accordingly, withdrawal of the rejections is respectfully requested.

CONCLUSION

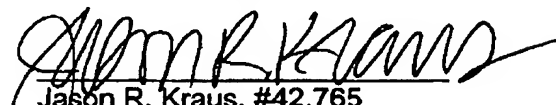
All pending claims are believed to be in condition for allowance. A notice to that effect is respectfully requested.

No fee is believed to be necessary for the entry of this paper. Should any fee be required for entry of this paper, the Commissioner is authorized to charge the Faegre & Benson Deposit Account No. 06-0029 and in such event is requested to notify us of the same.

Respectfully Submitted,

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